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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/552,997	04/19/2000	Jeremy B. Gaylord	5038-42	4029

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EXAMINER	
JERABEK, KELLY L	
ART UNIT	**PAPER NUMBER**
2612	5

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	09/552,997	GAYLORD, JEREMY B.
	Examiner	**Art Unit**
	Kelly L. Jerabek	2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 3/22/2004.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's arguments filed 3/22/2004 have been fully considered but they are not persuasive.

Response to Arguments

Response to Remarks:

Applicant contends (Amendment, page 5) regarding claims 1, 6, and 11 that the Wang reference fails to disclose that a bandwidth constrained frame rate is computed from a frame size and a bandwidth of a link. The Examiner respectfully disagrees. Wang shows that a Quantization parameter (Q) is adjusted for each frame to achieve a desired size of encoded frame (col. 7, lines 50-52). Primary open loop rate control (fig. 2: 202) determines a target size for the current frame. The target size for the frame represents the size for the frame such that all of the available bandwidth is consumed (col.7, lines 50-67). As shown in figure 1, the video signal encoder (100) includes a frame rate controller (120). The frame rate controller (120) retrieves a cumulative bandwidth balance from the Q adjuster (116) (col. 15, lines 10-36). The frame rate controller (120) then compares the cumulative bandwidth balance to a maximum and minimum threshold and reduces or increases the frame rate accordingly (col. 15, lines 37-60). Therefore, a frame rate is computed from a frame size and a bandwidth of a

link and the maximum and minimum thresholds are used to determine whether the frame rate is smaller than a requested rate of frames.

Applicant contends (Amendment, page 5) regarding claims 1, 6, and 11 that the claims recite computing the BCFR from a link's bandwidth (BW) divided by the product of frame size (FS) times compression ratio (CR). The examiner respectfully disagrees. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., computing BCFR from a link's bandwidth (BW) divided by the product of frame size (FS) times compression ration (CR)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant contends (Amendment, page 5) that claim 1 recites "determining whether the computed bandwidth constrained frame rate is smaller than a requested rate of video frames from the imager, and if so, determining an integration time of pixels of the imager from the computed bandwidth constrained frame rate". The amendment states that the Examiner agrees that Wang does not disclose such a determination. This is not true. The Examiner only agrees that Wang lacks the feature of determining an integration time of pixels of the imager from the computed frame rate. Wang includes the limitation of determining whether the computed frame rate is smaller than a

requested rate of video frame from the imager. The frame rate controller (120) compares the cumulative bandwidth balance to a maximum and minimum threshold and reduces or increases the frame rate accordingly (col. 15, lines 37-60). Therefore, a frame rate is computed from a frame size and a bandwidth of a link and the maximum and minimum thresholds are used to determine whether the frame rate is smaller than a requested rate of frames.

Applicant contends (Amendment, page 6) that Ackland does not suggest that the integration time is determined, adjusted, or varied responsive to the computed BCFR as recited. The Examiner respectfully disagrees. Wang shows that a Quantization parameter (Q) is adjusted for each frame to achieve a desired size of encoded frame (col. 7, lines 50-52). Primary open loop rate control (fig. 2: 202) determines a target size for the current frame. The target size for the frame represents the size for the frame such that all of the available bandwidth is consumed (col.7, lines 50-67). As shown in figure 1, the video signal encoder (100) includes a frame rate controller (120). The frame rate controller (120) retrieves a cumulative bandwidth balance from the Q adjuster (116) (col. 15, lines 10-36). The frame rate controller (120) then compares the cumulative bandwidth balance to a maximum and minimum threshold and reduces or increases the frame rate accordingly (col. 15, lines 37-60). Therefore, a frame rate is computed from a frame size and a bandwidth of a link and the maximum and minimum thresholds are used to determine whether the frame rate is smaller than a requested

rate of frames. Although Wang discloses computing a bandwidth constrained frame rate he does not explicitly state that an integration time of pixels of the imager is determined from the computed bandwidth constrained frame rate. Ackland discloses an active pixel sensor imaging system (fig. 1). The active pixel sensor collects generated charge carriers during the integration time (col. 4, lines 29-34). The integration time is determined by the frame rate (col. 4, lines 34-44). Therefore, it would have been obvious for one skilled in the art to have been motivated to include the concept of determining an integration time based on the current frame rate as taught in Ackland in the video signal encoder disclosed by Wang. Doing so would provide a means for reducing the noise and improve the quality of images transferred over a constrained bandwidth (Wang: col. 4, lines 1-29).

Applicant contends (Amendment, page 6) that the combination of Wang and Ackland is the result of hindsight reasoning. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The Wang reference states that computing a bandwidth

constrained frame rate helps to reduce the noise and improve the quality of images transferred over a constrained bandwidth (Wang: col. 4, lines 1-29).

Applicant contends (Amendment, page 6) that the Voois reference does not disclose computing, calculating or otherwise determining the BCFR from a compression ratio. The examiner respectfully disagrees. Although Wang discloses computing a bandwidth constrained frame rate he does not explicitly state that the BCFR is computed from a compression ratio of the imager. Voois discloses a video codec (fig. 2: 50). The video compression standards mentioned by Voois show that an encoded video signal has a compression ratio (col. 5, lines 57-67). Furthermore, Voois states that when the compression ratio is lowered the frame rate is increased (col. 6, lines 1-10). Therefore, it would have been obvious for one skilled in the art to have been motivated to include the concept of altering the frame rate based on a compression ratio as taught in Voois in the video signal encoder disclosed by Wang. Doing so would provide a means for reducing the noise and improve the quality of images transferred over a constrained bandwidth (Wang: col. 4, lines 1-29).

Applicant contends (Amendment, page 6) that Voois does not suggest that the BCFR could be inversely related to the compression ratio. This is true, however the claims do not mention this feature. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., BCFR could be inversely related to the

compression ratio) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant contends (Amendment, page 6) that the combination of Wang, Ackland and Voois is the result of hindsight reasoning. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The Wang reference states that computing a bandwidth constrained frame rate helps to reduce the noise and improve the quality of images transferred over a constrained bandwidth (Wang: col. 4, lines 1-29).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1,2,4,6,7,9,11, 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang US 6,118,817 in view of Ackland et al. US 5,739,562.

Re claim 1, Wang shows that a Quantization parameter (Q) is adjusted for each frame to achieve a desired size of encoded frame (col. 7, lines 50-52). Primary open loop rate control (fig. 2: 202) determines a target size for the current frame. The target size for the frame represents the size for the frame such that all of the available bandwidth is consumed (col.7, lines 50-67). As shown in figure 1, the video signal encoder (100) includes a frame rate controller (120). The frame rate controller (120) retrieves a cumulative bandwidth balance from the Q adjuster (116) (col. 15, lines 10-36). The frame rate controller (120) then compares the cumulative bandwidth balance to a maximum and minimum threshold and reduces or increases the frame rate accordingly (col. 15, lines 37-60). Therefore, a frame rate is computed from a frame size and a bandwidth of a link and the maximum and minimum thresholds are used to determine whether the frame rate is smaller than a requested rate of frames. However, Wang does not explicitly state that an integration time of pixels of the imager is determined from the computed bandwidth constrained frame rate.

Ackland discloses an active pixel sensor imaging system (fig. 1). The active pixel sensor collects generated charge carriers during the integration time (col. 4, lines 29-34). The integration time is determined by the frame rate (col. 4, lines 34-44). Therefore, it would have been obvious for one skilled in the art to have been motivated

to include the concept of determining an integration time based on the current frame rate as taught in Ackland in the video signal encoder disclosed by Wang. Doing so would provide a means for reducing the noise and improve the quality of images transferred over a constrained bandwidth (Wang: col. 4, lines 1-29).

Re claim 2, Ackland shows that the integration time is determined to result in the imager outputting video frames at a rate commensurate with the bandwidth constrained frame rate (col. 4, lines 34-44).

Re claim 4, Ackland states that the integration time is determined from a numerical inverse of the computed bandwidth constrained frame rate (col. 4, lines 38-39).

Re claim 6, Wang states that the video signal encoder (fig. 1: 100) executes within a server computer (fig. 11: 1102). See also (col. 18, lines 57-64). For the rest of claim 6, see claim 1.

Re claim 7, Wang states that the video signal encoder (fig. 1: 100) executes within a server computer (fig. 11: 1102). See also (col. 18, lines 57-64). For the rest of claim 7, see claim 2.

Re claim 9, Wang states that the video signal encoder (fig. 1: 100) executes within a server computer (fig. 11: 1102). See also (col. 18, lines 57-64). For the rest of claim 9, see claim 4.

Re claim 11, Wang states that the video signal encoder (fig. 1: 100) executes within a server computer (fig. 11: 1102). The video signals are transferred through a computer network (fig. 11: 1104). See also (col. 18, lines 57-64). For the rest of claim11, see claim 1.

Re claim 12, Wang states that the video signal encoder (fig. 1: 100) executes within a server computer (fig. 11: 1102). The video signals are transferred through a computer network (fig. 11: 1104). See also (col. 18, lines 57-64). For the rest of claim12, see claim 2.

Re claim 14, Wang states that the video signal encoder (fig. 1: 100) executes within a server computer (fig. 11: 1102). The video signals are transferred through a computer network (fig. 11: 1104). See also (col. 18, lines 57-64). For the rest of claim14, see claim 4.

Claims 3,8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Ackland and further in view of Voois US 6,404,776 .

Re claim 3, Wang in view of Ackland contains all of the limitations of claim 1. In addition, Wang mentions an encoded video signal (col. 15, lines 13-26). Wang also mentions that the video signal encoding is performed according to digital video standards such as the ITU standard H.263. (col. 1, lines 53-57). However, Wang in view of Ackland does not explicitly state that the bandwidth constrained frame rate is computed from a compression ratio of the imager.

Voois discloses a video codec (fig. 2: 50). The video compression standards mentioned by Voois show that an encoded video signal has a compression ratio (col. 5, lines 57-67). Furthermore, Voois states that when the compression ratio is lowered the frame rate is increased (col. 6, lines 1-10). Therefore, it would have been obvious for one skilled in the art to have been motivated to include the concept of altering the frame rate based on a compression ratio as taught in Voois in the video signal encoder disclosed by Wang. Doing so would provide a means for reducing the noise and improve the quality of images transferred over a constrained bandwidth (Wang: col. 4, lines 1-29).

Re claim 8, Wang states that the video signal encoder (fig. 1: 100) executes within a server computer (fig. 11: 1102). See also (col. 18, lines 57-64). For the rest of claim 8, see claim 3.

Re claim 13, Wang states that the video signal encoder (fig. 1: 100) executes within a server computer (fig. 11: 1102). The video signals are transferred through a computer network (fig. 11: 1104). See also (col. 18, lines 57-64). For the rest of claim13, see claim 3.

Claims 5, 10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Ackland and further in view of Leidig et al. US 5,822,625.

Re claim 5, Wang in view of Ackland contains all of the limitations of claim 1. However, Wang in view of Ackland does not explicitly state that a gain of the imager is determined from the determined integration time.

Leidig discloses a hybrid electronic-film camera (fig. 1). Leidig shows that a microcontroller (34) sets up the camera (10) at a calculated gain and integration time (col. 7, lines 46-52). The relationship of gain and integration time is advantageous because it is well known in the art that the determined integration time can be used to determine a gain that will optimize the signal to noise ratio. For this reason, it would

have been obvious to include the relationship of gain and integration time as taught in Leidig in the video signal encoder disclosed by Wang in view of Ackland. Doing so would provide a means for reducing the noise and improve the quality of images transferred over a constrained bandwidth.

Re claim 10, Wang states that the video signal encoder (fig. 1: 100) executes within a server computer (fig. 11: 1102). See also (col. 18, lines 57-64). For the rest of claim 10, see claim 5.

Re claim 15, Wang in view of Ackland contains all of the limitations of claim 14. However, Wang in view of Ackland does not explicitly state that a gain of the imager is determined from the determined integration time.

Leidig discloses a hybrid electronic-film camera (fig. 1). Leidig shows that a microcontroller (34) sets up the camera (10) at a calculated gain and integration time (col. 7, lines 46-52). The relationship of gain and integration time is advantageous because it is well known in the art that the determined integration time can be used to determine a gain that will optimize the signal to noise ratio. For this reason, it would have been obvious to include the relationship of gain and integration time as taught in Leidig in the video signal encoder disclosed by Wang in view of Ackland. Doing so would provide a means for reducing the noise and improve the quality of images transferred over a constrained bandwidth.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly L. Jerabek whose telephone number is 703-305-8659. The examiner can normally be reached on Monday - Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for submitting <u>all Official communications</u> is 703-872-9306. The fax phone number for

submitting informal communications such as drafts, proposed amendments, etc., may be faxed directly to the Examiner at 703-746-3059.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KLJ

NGOC-YEN VU
PRIMARY EXAMINER